



Dry-Matic

DELIVERING DRY HEALTHY HOMES



Dry-Matic

with Digital Controller



Digital controller

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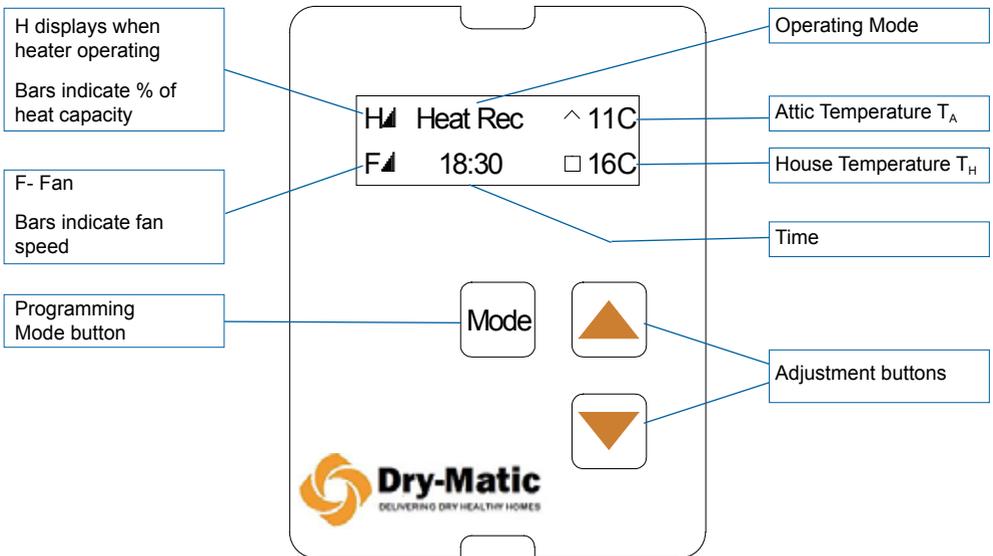


Dry-Matic User Operation

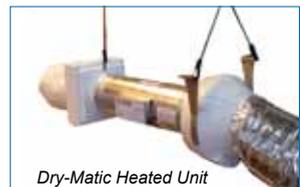
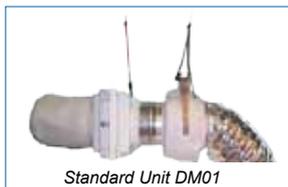
System Benefits

Congratulations on purchasing a Dry-Matic. Your Dry-Matic is designed to provide whole home ventilation 24hrs per day 7 days per week. This provides the benefits of:

- Virtually eliminating condensation on windows and cold surfaces by forcing out moist stale air and replacing with relatively dry air.
- Reducing airborne concentrations of irritants, asthma causing allergens and smells by forcing out stale air and replacing it with fresh air.
- Heat recovery, recycles space heating energy lost to the roof space.
- Heat recovery, takes advantage of solar gain to the roof space on those sunny winters' days.



Dry-Matic digital controller shown in normal operating mode



Cleaning the filters

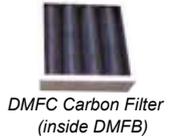
Although the Dry-Matic is designed to run continuously for years, the filters do need cleaning every 8 months or so for optimal performance (clean at least yearly).

If the filter timer is activated, the hall controller display will start flashing **Dirty Filter** to indicate it is time to clean the filters.

The white filter bag can be machine washed on gentle cycle or hand washed - vacuum first to remove excess dust. Alternatively replace with a new one.

The carbon filter inside the filter box should be replaced every year.

You may prefer to get a professional to climb into the attic space to access the filters.



To reset flashing display 'Dirty Filter'

After factory reset or filter timer activated, go to **User Menu** (c2. over page), follow instructions to select "Reset the Timer - Y".

Optional Heater

Some Dry-Matic units have been fitted with a thermostatically controlled duct heater that tempers the incoming air when it is cold in the attic.

Optional Summer Vent Kit

The Dry-Matic Summer Ventilation Kit is an optional add-on for Digital Dry-Matics.

It can be added during installation or several years after installation.

The digital hall controller can be commissioned to control the motorised diverting branch damper, directing air intake from the cooler outside air for summer months.

Again, the air intake filter, and the inline 'Sock' will need cleaning as above.



User instructions continued on next pages

Dry-Matic User Operating Instructions

Your Dry-Matic is essentially fully automatic in operation once set up/commissioned to suit your home. The commissioning set up process fine tunes your Dry-Matic in all or some of the following Modes:

- a. **Anti Condensation Mode** - when the attic temperature is cooler than the house temperature, the Fan operates at trickle speed to provide background ventilation 24/7.
- b. **Heat Recovery Mode** - when attic temperature is warmer than house temperature and house temp is less than "Inside reference temperature" of 20°C*, the fan speed increases to warm the house (speed increases incrementally as the temperature difference between house and attic increases to maximum fan speed at 3°C** difference).

- c. **Heater Mode** *(heated models only)* - if the attic is cold, <15°C** and the house temp is below the reference temp of 20°C*, then the heater can operate to temper the incoming fresh air (heat is proportional to the temperature difference over 3°C**). The heater mode has the following features:

- c1. **A time clock feature** *(heated models only)* accessible from the **User Menu**, that allows the heater to be turned off / run (as required by thermostat) for programmed hours** (eg. 7pm to 7am), / or continuously, or off. This allows the user to operate the heater overnight, or all the time, or to shut heater down while away for holidays, thereby providing a control of energy usage.

c2. To get to **User Menu**: press and hold mode button[†], continue holding while "Entering Menus" appears & hold until "User Setup" shows. Use the up arrow to change the options, Mode button to select.

- Heater enabled Y/N - if N, Heater will not operate
- Heater enabled Y/N - if Y, Options will show next:
 - Heater Continuous - if Y, Heater always enabled
 - Heater Continuous - if N, Heater enabled at night
- Reset Timer Y/N - if Y, Timer & display reset

NB. Night operating times can be changed in the "Set up Menu" on pp10-13

 Press and hold Mode button[†] for approx 5 seconds until "User Setup" appears

 Use up arrow to change options

 Use Mode button to select option

[†]note: previous versions of the digital hall controller require you to press and hold the mode button **and** up arrow together to get to the user menu.

- d. **Cool Recovery Mode** ** (default: disabled) - when house is hot (above ref temp) and attic temp is less than 20°C*, the fan speed increases (speed is proportional over the temperature difference to 3°C**) to cool the house down. This will not operate if attic temp is below 15°C.
- e. **Auto Summer Shutdown** - when house is hot and attic is very hot >27°C**, the system shuts down until the attic temp decreases again.
- f. **Auto Winter Shutdown** ** (default: disabled) - If attic temp is less than 2°C**, the system shuts down until attic temp increases again.
- g. **Filter Timer** - This provides an alarm (flashing display) when fan has operated for 240 days**, indicating that the filter should be cleaned and/or replaced (default: enabled). Can be reset in User Menu (see c2 above).

Dry-Matic User Operating Instructions (continued)

- h. **Summer Vent Mode** (If 'Vent Kit' fitted) - The fan can be operated at full speed and the duct diverting damper set to draw air from outside (cool side of the house) for 2, 4, 8, 12, 24hrs or 'off' by pressing the up arrow while controller is in normal operating mode (not in any menu) (default: not fitted**).
- i. **Time-clock** - adjustment is accessed by pressing and holding the down arrow until 'Set Clock' appears, after a moment the time appears, which can be adjusted up or down using the up arrow to wind back and the down arrow to move forwards. Press the Mode button to 'enter' the new setting.

 Press and hold down arrow for 5 seconds until "Set Clock" appears

* Reference Temperature (default 20°C) is set in the commissioning menu

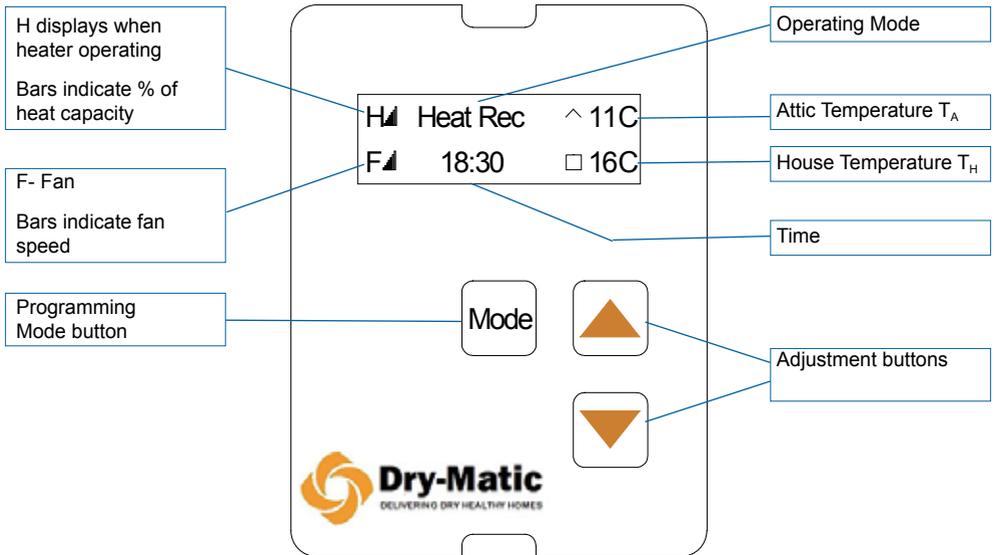
** Default Setting – can be adjusted in the commissioning menu.

Please note: the above modes need to be set by the installing contractor.

T_A - Attic temperature (^ shown in operating display)

T_R - Inside reference temperature

T_H - House temperature (□ shown in operating display)



Dry-Matic digital controller shown in normal operating mode

Dry-Matic Installation Instructions

It is recommended these units are installed by a preferred installer, please contact us for a list in your area. Installation instructions are a guide only. All electrical connections are subject to NZ law.

Pre-Installation checks

Before starting the installation, check the site & establish the best position/s of the following components:

Diffuser For most small to medium sized homes a single diffuser is usually all that is necessary. It is recommended this be installed into a hallway that is common to most rooms in the home. Installation of the main diffuser into the living / dining area is not recommended.

Unit The Unit comprises of the Fan, Heater (if supplied) and Filter box. It is important to install the Unit so that it is as high as possible in the roof space, this is to maximize the benefit of any thermal gain. It also keeps the fan inlet air above dust which may come from the roof insulation. **IMPORTANT:** The unit must be installed in a perfectly horizontal position to ensure correct heater operation.

Attic Controller Is to be installed at the same level as the inlet to the fan, so as to best measure the inlet air condition (temperature) of the unit. The attic controller **must be installed vertically, with the pack glands downwards**. The attic controller can be fixed to the timber framing in the roof space.

Hall Controller Hall controller is to be installed in the house at least 3m from the diffuser but in the same area, approx. 1.5m above the floor. The hall controller should not be installed on an external wall, in a living / dining area or in the immediate vicinity of a heater or heat pump outlet. This is so that the Hall Controller's built in temperature sensor is not affected by outside air temperature or heating, and should best measure average house temperatures.

Ducting Installation of ducting should allow for a full stretch and a smooth sweep onto the rear of the diffuser. This will have a marked effect on the effective operation of the unit air flow & attenuation of fan noise.

Installation Procedure

Based on the above criteria:

1. Fit Diffuser Before cutting hole for diffuser, check that it will clear ceiling joists and roof structure. Use circle template to cut correct sized hole in the ceiling. Attach duct to grille, taping the centre duct sleeve to the grille spigot then separately taping the insulation/outer to the spigot. Feed ducting through the hole and clip diffuser in place using the spring clips. Ensure grille has a minimum gap of 16mm between inner disk and outer collar.

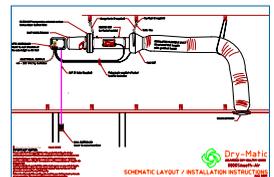
Dry-Matic Installation Instructions (continued)

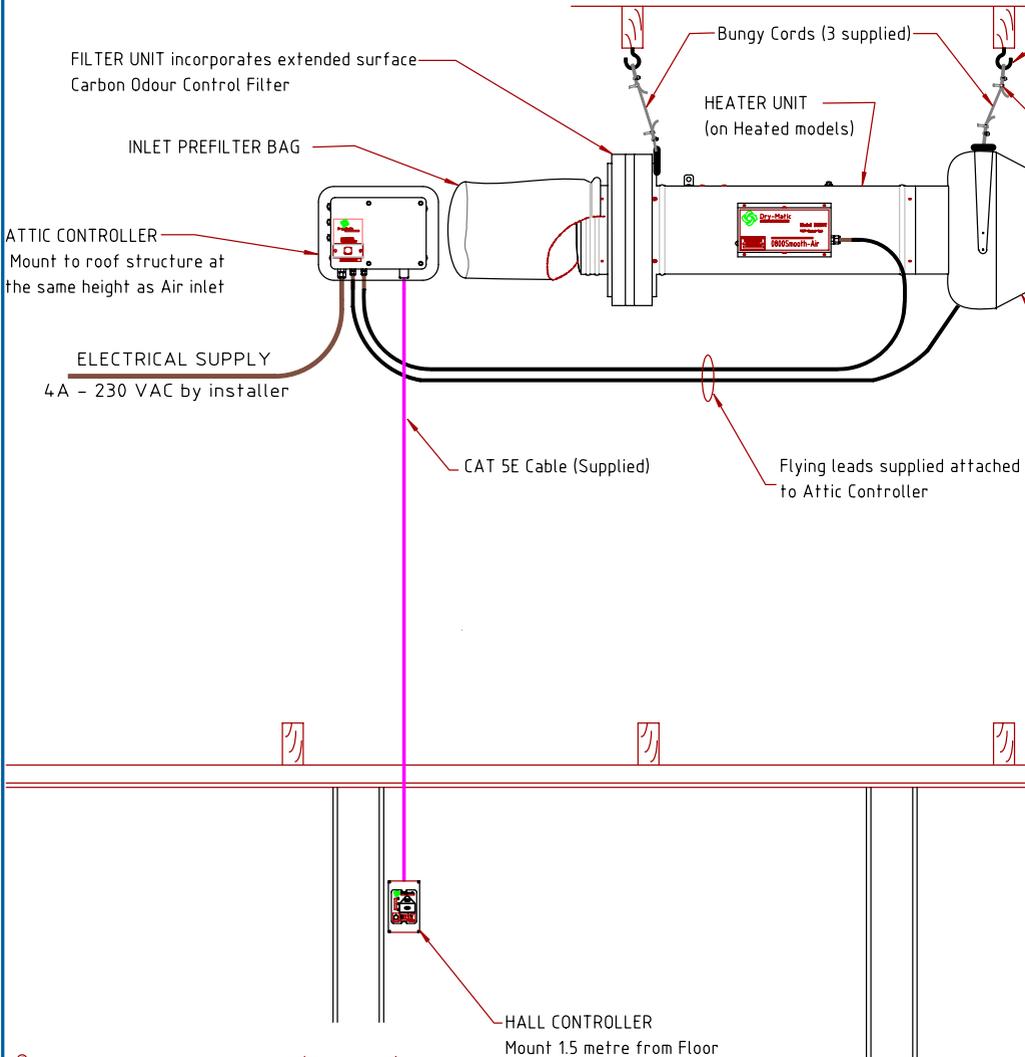
- 2. Assembly of Unit** It is suggested that this is done in a clear space on the floor.
- FAN: Mount fan brackets / hanging lugs to side of fan.
- HEATER (on heated models): Fit to inlet of fan using 4 screws provided (note airflow direction for fan is shown by an arrow on the terminal cover). Ensure airflow direction arrow on heater is the same as direction on fan, ensure heater is mounted so marked top is installed upright. Ensure heater is level.
- FILTER BOX: Fit to heater (on heated models), or fit to the fan using the supplied collar, so that the hanging bracket is on the heater/fan inlet side. Ensure airflow direction arrow on filter is same as fan.
- PRE FILTER: Fit white pre filter bag to inlet of filter box.
- 3. Pre Wiring** Using supplied flying leads, connect attic control unit to fan and heater (on heated models). Check wiring diagrams on components carefully.
- 4. Installing in Attic** Lift assembled unit into attic space. Fit supplied cup hooks (x2) to roof structure. Clip supplied bungies (x3) to the three mounting points on assembled unit. Lift unit into position and hook other end of bungee cords over cup hooks. Attach duct to fan outlet, taping core and insulation/outer as before. Adjust length of bungies so unit is level and tighten cable ties to lock unit into position.
- 5. Mount Attic and Hall Controllers** Run supplied cat 5 patch lead to hall controller position (as above), attach to hall controller and attic controller.
- 6. Power Supply** Connect a power supply to attic controller isolating switch (by registered electrician).

Commission the unit

- 7. Set up the unit** using the hall controller, as per commissioning instructions pp10-13
- 8. Check Operation** check the unit is operating correctly, as for user operating instructions pp4-5.

See next page
for installation
schematic





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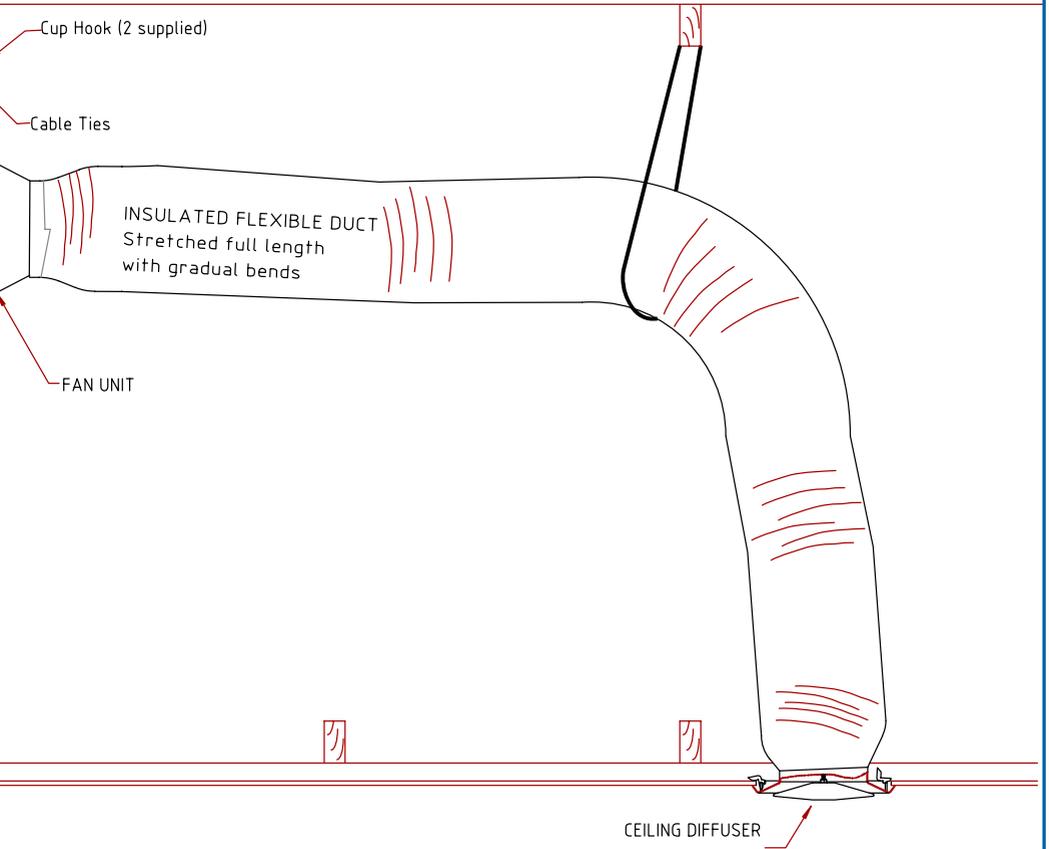
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SCHEM

Installation Schematic



Dry-Matic

DELIVERING DRY HEALTHY HOMES

0800Smooth-Air

DRY-MATIC LAYOUT / INSTALLATION INSTRUCTIONS

June 2009

Dry-Matic Set up Commissioning Instructions

It is recommended commissioning is performed by a professional technician.

Before commissioning, the installation must be discussed with the client so that the modes can be set as for the User Operation Instructions, and include any additional equipment that has been installed.

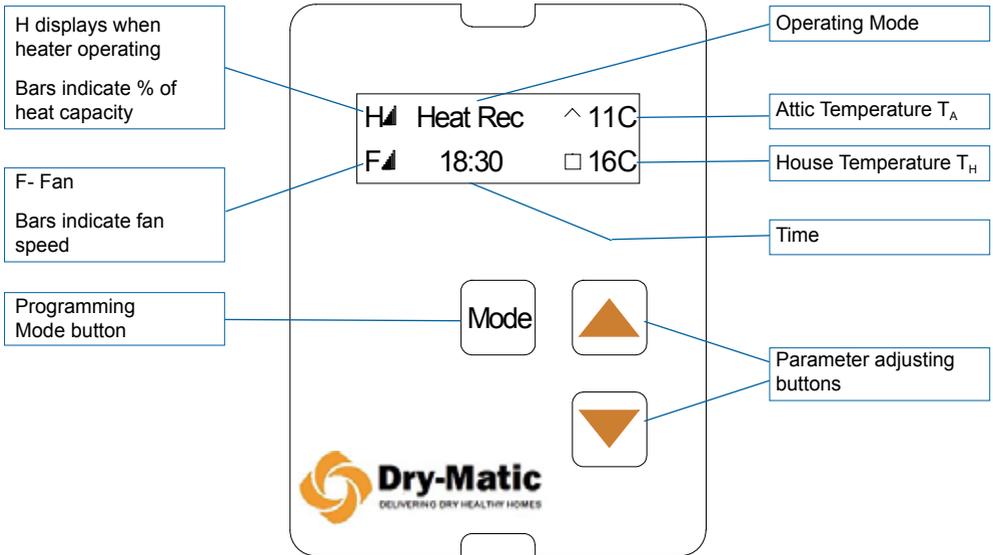
Typical settings for the following Models:

DM01D Heater Kit Y/N? (as below) Change to N

- This removes the heater options from all Menus

DM07D Use Default settings unless Fan Max needs to be adjusted.

DM15D Use default settings unless client would like Fan Speed Heat increased.



Dry-Matic digital controller shown in normal operating mode

Commissioning Instructions

Commission the unit using the “Setup Menu”, which is accessible by pressing and holding the up and down buttons for 3-5 seconds until “Setup Menu” is displayed. Menu can be scrolled through by pressing the mode button. If no button is pressed for 15 seconds, unit will revert to operating mode – therefore it is recommended that any changes are planned in advance. Use form on p13 to pre-plan settings.

Hold mode button to cycle through options quickly.

Available modes are also described in the User Operating Instructions pp2-5.

-  Press and hold up and down arrows together for 5 seconds until “Setup Menu” appears
- 
-  Use up arrow to change options
-  Use Mode button to select option
-  Use up and down arrows to change settings
- 

Dry-Matic Set up Commissioning Instructions (continued)

Menu sequence is as follows. Press up and down arrow together to get to Setup Menu.
Press up (or down) button to change setting, then press Mode to enter desired setting.

1. Heater Kit Y/N (default Y) For DM01 press up arrow to change to N - this will remove heater options from all menus (heater options in orange). Press Mode to select.

1.2 Heater Times (option only for heated models)

> display then changes to show the current settings default:

Heater on 00:00

Heater off 00

> display then changes again to Change times Y/N (default N)

Select desired 'Heater ON' time in Hours:Mins using up or down arrow, press mode to select

Select desired 'Heater OFF' time in Hours:Mins using up or down arrow, press mode to select.

1.3 Heater Test Y/N (default N) (option only for heated models)

2. Max Fan Speed (default 35%) range 35-60

Provides the ability to adjust fan Hi speed to suit the size of the house. We recommend:

35% for houses up to 150m²

40% for houses up to 200m² (requires at least a second grille)

45% for houses up to 250m² (requires at least a second grille)

50% for houses up to 300m² (requires at least a second grille)

For houses larger than this we recommend additional Dry-Matic units.

3. Min Fan Speed (default 25%) range 20-35

Provides the ability to adjust fan minimum speed, we recommend a setting of 25% for this.

4. Fan Speed Heat (default 32%) range 30-45 (option only for heated models)

This must be set to ensure that minimum speed is sufficient to ensure heater sail switch operates (with semi dirty filter) and provides sufficient airflow to the number of outlets installed, balanced against too much airflow that will limit temperature rise through the heater.

Note - if heater faults during commissioning, please check heater is installed level.

- Adjustment range 30-45%

- At default setting, nominal temp rise is 9°C for DM07

- At default setting, nominal temp rise is 18°C for DM15. We recommend Fan Speed Heat set at 30% for this model.

- If "heater fault" appears only briefly, this is normal

5. Winter mode Y/N (default Y) - Winter shutdown mode (up button to change to Y, Mode to enter). This setting is available for particularly cold locations, and is mainly when house is not heated (house unoccupied for periods of days or weeks), as in these conditions, when moist outside air is introduced, in some cases it can cause worse air quality, resulting in condensation.

If 'Y': if attic temp (T_A) is less than 0°C (default), the system shuts down until T_A increases again. If 'Y', next menu is:

5.1 S/down temp? (default 0°C, range: -2° to +2°C) (up & down arrows to change, mode to enter).

6. Summer-Vent Inst (default N) (up button to change to Y, mode to enter)

If 'Y' & summer vent kit is installed, the fan can be operated at full speed and the duct diverting damper set to draw air from outside (cool side of the house) for 2, 4, 8, 12, 24hrs or 'off', by pressing the up arrow when in operating mode (not in any menu).

Dry-Matic Commissioning Instructions (continued)

7. Cool Recover Y/N (default N) (up button to change, mode to enter)

This mode provides ventilation when house is warm and air is cooler outside. It is manual, as there are times when house has been heated, but is cool outside, hence the limit if the attic temperature is below 15°C.

If 'Y': When the house (T_H) is hot (above the 'I/side Ref Temp': T_R , default 20°C), and attic temperature ('O/side Ref Temp': T_A) is less than T_R ($T_A < T_H > T_R$), the fan speed increases. Fan speed is proportional over the temperature difference to 3°C to cool the house down (the 3°C is changeable using 'Heat Reco P/band'). This will not operate if attic temp is below 15°C (changeable using 'O/side Ref Temp': T_A).

8. Filter Timer on (default Y) - Sets a timer to count how many days since last filter change.

9. Filter Alm days (default 240) range 150-240 - Filter Alarm - Display will flash 'Swap Fltr' when the filter is due to be changed (see c2 on p4 to reset).

10. I/side Ref Temp - Hall reference temperature T_R (default 20°C) - recommend leave set at 20°C

11. O/side Ref Temp - Attic reference temperature T_A (default 15°C) - recommend leave set at 15°C

12. O/side Deg offse- Attic Degree Offset (default 0) Provides site calibration of attic temp display if required. eg use -2 if controller reading 2°C too high.

13. I/side Deg Offse- Hall Degree Offset (default 0) Provides site calibration of house display if required. eg use -2 if controller reading 2°C too high.

14. Heat P/band (default 3°) - range 1-7°C. (option only for heated models)

At a proportional band of 3°C, heater will start to operate at attic temp 15°C and is fully on when temperature gets down to 12°C. A smaller proportional band will bring heater on over a smaller temperature range.

15. Heat Reco P/band (default 3) - Heat Recovery Proportional Band.

- With proportional band of 3°C, the fan starts to speed up when the attic is 1°C warmer than the house. Fan speed is at max when the attic temperature gets to 3°C above house temperature (provided the house is below the reference temperature T_R , default 20°C).

16. Cool Reco P/band (default 3) - Cool Recovery Power Band.

- With proportional band of 3°C, the fan starts to speed up when the attic is 1°C cooler than the house and is at maximum speed when the attic temperature gets to 3°C below the house temperature (provided house is above the reference temperature T_R (default 20°C), cool recovery is enabled and attic is above T_A (default 15°C).

17. Summ Temp s/down (default 27°C) range 25-35°C. Auto Summer Shutdown. - When the house is hot and the attic is very hot ($T_A > 27°C$), the system shuts down until T_A decreases again.

18. Factory Reset (default N) (up button to change, mode to enter) Resets everything (including heater on & off times - back to 7pm-7am).

T_A Attic temperature

T_H Hall temperature

T_R Reference temperature



Use up arrow to change options



Use Mode button to select option



Use up and down arrows to change settings



Installer's recommended settings for your Dry-Matic:

	Installer's setting	Default setting
1. Heater Kit	Y/N	(Y)
Heater ON	time: :	(19:00)
Heater OFF	time: :	(07:00)
2. Max Fan Speed	..... %	(35%)
3. Min Fan Speed	..... %	(25%)
4. Fan Speed Heat	..... %	(32%)
5. Winter Mode	Y/N	(Y)
If Y, shut down temp:	..... °C	(0°)
6. Summer-Vent Kit installed?	Y/N	(N)
7. Cool Recover	Y/N	(N)
8. Filter Timer on	Y/N	(Y)
9. Filter Alm days (If filter timer Y)	days	(240)
10. I/Side Ref Temp	..... °C	(20°)
11. O/Side Ref Temp	..... °C	(15°)
12. O/Side Degree Offset	..... °C	(0°)
13. I/Side Degree Offset	..... °C	(0°)
14. Heat P/band	..... °C	(3°)
15. Heat Reco P/band	..... °C	(3°)
16. Cool Reco P/band	..... °C	(3°)
17. Summer Temp S/down	..... °C	Yes (27°)
18. User On/Off	Y/N	(N)
19. Factory Reset	Y/N	(N)

Heater option not available for DM01

Heater option not available for DM01

Heater option not available for DM01

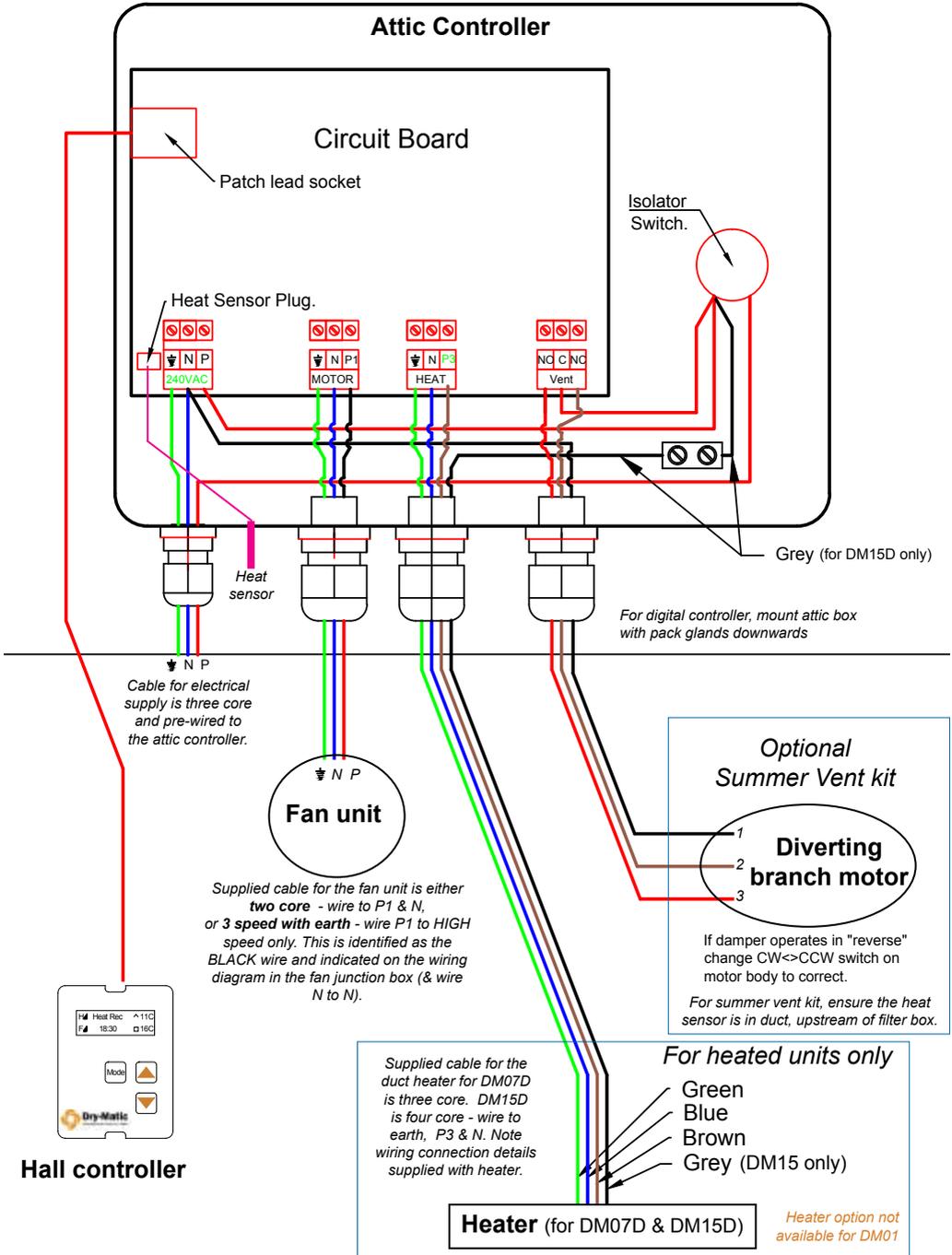
Installer Details:

Error Codes:

- Swap Fltr Filter due for change
- Timer Err Filter timer is misbehaving - reset timer (see p4-c2)
- Heater Fault No heater current flowing, check circuit
- Heater Err Fan speed is too low in the software
- Fan sanity check failed Recovery and heater fan error
- Stat err Display status problem

**Manufacturer 0800 Smooth-Air
0800 766 684**

Dry-Matic Wiring Diagram



Attic Controller

The attic controller must be mounted vertically with pack glands downwards.

Cat5 cable to digital wall controller



For digital controller, mount vertically with pack glands downwards.



Isolator switch

Temperature sensor wire plugs in here and comes through here

Mount vertically with pack glands downwards

Electrical supply

to fan

to heater (for DM07 & DM15)



Easy plug-in connection between attic and hall controllers



Attach brackets to side of fan

Attach brackets to fan, hang using bungy cords with junction box downwards



Conditional Guarantee

Dry-Matic Warranty Period

3 years from date of first retail purchase (see warranty)

Guarantee Period

1 year money back conditional guarantee

The goods carry a one year money back conditional guarantee, effective from the installation date. The purchaser agrees to trial the unit for a minimum of 90 days during colder weather prior to activating the money back guarantee.

The vendor agrees to remove the goods (if guarantee is applicable) under the money back guarantee offer, if requested by the purchaser within the guarantee period. Removal means the Vendor will remove the goods at no charge for the removal work, and refund the cost of the goods, (as details above). Any vent or duct filling a hole or cavity in the ceiling that was installed as part of the installation of the goods will be left in place. The money back guarantee does not cover separate installation costs or the repair of the hole used by the unit. The cost for the repair of ceiling holes or other ventilation holes (if required) is either deductible from the refund or an additional cost payable by the Purchaser.

WARRANTY RETURN

Upon installation, please send to: Smooth-Air, PO Box 8358, Christchurch

I have read, understood and accept the terms of the conditional guarantee

tick

Purchaser: _____
name *signature*

Address: _____

Description: Dry-Matic DM _____

Date of installation: _____

Purchased from: _____

Installed by: _____